

**IP ADAPTATION LAYER ON BACKHAUL CONNECTION OF
CELLULAR NETWORK**

ABSTRACT

The present invention relates to an improved wireless communications system capable of efficiently transmitting smaller-sized data packets (e.g. 10 to 20 byte length) that are frequently delivered (e.g. every 10 to 20 msec.) to mobile nodes on the communications system, such as voice communications. Because an uncompressed TCP/IP or UDP/IP header length is disproportionally large compared to the smaller-sized data packets, the bandwidth on the backhaul connection between the base station controller unit (BSC) and the base transceiver station (BTS) is not being utilized as efficiently as possible. The present invention optimizes the transmission of information packets on the backhaul connection by using an IP Adaptation Layer (IPAL) protocol to map the user connections, eliminate the large header on information packets having smaller-sized data packet sizes, and concatenating the data packets into an IPAL information packet for tunneling on the backhaul connection. In this manner, the present invention more efficiently uses the available bandwidth on the backhaul connection by selectively reducing the overhead (e.g. headers) of the information packet transmission.